

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
21 October 2004 (21.10.2004)

PCT

(10) International Publication Number
WO 2004/090978 A2

- (51) International Patent Classification⁷: **H01L 23/544**
- (21) International Application Number:
PCT/GB2004/001533
- (22) International Filing Date: 8 April 2004 (08.04.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
0308082.7 8 April 2003 (08.04.2003) GB
0308086.8 8 April 2003 (08.04.2003) GB
- (71) Applicant (for all designated States except US): **AOTI OPERATING COMPANY, INC.** [US/US]; 131 NW Hawthorne Avenue, Suite 207, Bend, OR 97701 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **SMITH, Nigel, Peter** [GB/GB]; Accent Optical Technologies, Haxby Road, York YO31 8SD (GB). **HAMMOND, Michael, John** [GB/GB]; Accent Optical Technologies, Haxby Road, York YO31 8SD (GB).
- (74) Agent: **NOVAGRAAF PATENTS LIMITED**; The Crescent, 54 Blossom Street, York YO24 1AP (GB).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:**
— without international search report and to be republished upon receipt of that report
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **OVERLAY METROLOGY MARK**

(57) Abstract: An overlay metrology mark for determining the relative position between two or more layers of an integrated circuit structure comprising a first mark portion associated with and in particular developed on a first layer and a second mark portion associated with and in particular developed on the surface of a second layer, wherein each mark portion comprises a single two dimensional generally orthogonal array of individual test structures. A method of marking and a method of determining overlay error are also described.

WO 2004/090978 A2